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10/526,771	03/08/2005	Rikuo Onishi	HEIW:046	5849

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EXAMINER	
WU, IVES J	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/526,771	ONISHI ET AL.	
	Examiner	Art Unit	
	Ives Wu	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,20,21,23 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,20,21,23 and 24* is/are rejected.

7)☒ Claim(s) *24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

(1). Applicants' Amendments and Remarks filed on 04/05/2007 have been received.

Claims 1, 20-21 are amended. Claim 19 and 22 are cancelled.

Total cancelled claims are 10-19, 22. Claims 23-24 are newly added.

The rejection for claim 1 in prior Office Action dated 01/05/2007 is revised, and presented together with rejections of claims 2-9 of prior Office Action dated 01/05/2007 in the following.

Also, alternative rejections for claims 1-9, 20-21 and 23-24 are introduced in the following.

Claim Objections

(2). **Claim 24** is objected to because of the following informalities: In claim 24, it cites: "(B) the modified propylene based polymer according **o** claim 1". It would be proper to cite: "(B) the modified propylene based polymer according **to** claim 1". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

(3). **Claims 24, 20-21** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 24, it cites: "which composition does not contain glass fiber". However, this limitation is not disclosed in Applicants' Specification. Therefore, claim 24 is rejected.

Claims 20-21 are rejected because they are dependent claims.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(4). **Claims 1-3** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Diana et al (US005936041A).

As to modified polypropylene based polymer obtained by modifying at least one propylene based polymer selected from the group consisting of a propylene homopolymer, a random copolymer of propylene and α-olefin, a block copolymer of propylene and α-olefin, and a graft copolymer of propylene and α-olefin, with a radical initiator, and a compound containing in the same molecule an ethylenic double bond and a polar group in **independent claim 1**, Diana et al (US005936041A) disclose a functionalized, fractionated polymer prepared by functionalizing the fractionated polymer to contain mono- or dicarboxylic acid producing groups selected from the group consisting of a mono-unsaturated mono-carboxylic acid producing compound and a mono-unsaturated dicarboxylic acid producing compound (Col. 5, line 3-5, line 10-13). Preferred polymers are polymers of ethylene and at least one α-olefin having the formula $H_2C=CHR^4$ wherein R^4 is straight chain or branched chain alkyl radical comprising 1 to 18 carbon atoms. Therefore, the useful comonomers with ethylene include propylene. Preferred polymers are copolymer of ethylene and propylene (Col. 9, line 20-32). Another preferred class of polymers is α-olefin polymers; Isotactic and atactic polypropylenes are also useful examples of α-olefin polymers (Col. 10, line 24-25).

As to process of modifying at least one propylene based polymer with a radical initiator and a compound containing in the same molecule an ethylenic double bond and a polar group in **independent claim 1**, it is noticed that instant claim is product-by-process claim, although the product prepared in a different manner, appeared to be the same as the claimed product. *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

As to Molecular Weight Distribution (Mw/Mn) to be more than 2.5 in **independent claim 1**, Diana et al disclose MWD of from about 1.2 to 3 (Col. 4, line 65-66).

As to the intrinsic viscosity measured at 135 °C in tetralin to be from 0.8 to 3.0 dl/g in **independent claim 1**, Diana et al disclose the polymers possessing generally an intrinsic viscosity (as measured in tetralin at 135 °C) of between 0.025 and 0.6 dl/g, when grafted, they are essentially amorphous (Col. 9, line 51-56). The intrinsic viscosity would increase after the

grafting with unsaturated carboxylic acid because the additional polar functional group. Therefore, it is examiner's position to believe that the functionalized polymers of Diana et al (identical to modified propylene based polymer of applicants) would inherently possess the intrinsic viscosity range as claimed. Since USPTO does not have proper means to conduct the measurements, the burden now is shifted to applicants' to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

As to content of polar moiety to be from 0.10 to 0.30 mmol/g and content of components with Mw of 10,000 or less being 5% wt or less in **independent claim 1**, in view of substantially identical modified α-olefin based (such as propylene) polymers disclosed by Diana et al, and by applicants, it is examiner's position to believe that the functionalized polymers of Diana et al would inherently possess the ranges for polar group moieties content, and content of components with Mw of 10,000 or less as claimed. Since USPTO does not have proper means to conduct the measurements, the burden now is shifted to applicants' to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

(5). The same rationale of rejection for **claims 2-3** are recited in prior Office Action dated 01/05/2007.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(6). **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Diana et al (US005936041A) in view of Coe (WO 01/36495A1) for the same rationale recited in prior Office Action dated 1/5/2007.

Claims 4 and **23** are also rejected based on the rationale of product-by-process. *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

(7). **Claims 5-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Diana et al (US005936041A) in view of Ueno et al (US004983647) for the same rationale recited in prior Office Action dated 1/5/2007.

ALTERNATIVELY, CLAIMS 1-9, 20-21 AND 23-24 ARE INTRODUCED IN THE FOLLOWING:

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(8). **Claims 1-4, 23** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chen et al (US05814715A).

As to modified polypropylene based polymer obtained by modifying at least one propylene based polymer selected from the group consisting of a propylene homopolymer, a random copolymer of propylene and α-olefin, a block copolymer of propylene and α-olefin, and a graft copolymer of propylene and α-olefin, with a radical initiator, and a compound containing in the same molecule an ethylenic double bond and a polar group in **independent claim 1**, Chen et al (US05814715A) disclose amorphous olefin polymers, copolymers, methods of preparation and derivatives (Title). The polymer derived from a monomer having the formula: $H_2C = CHR$; where **R is hydrocarbon** (- can be polypropylene based) or substituted hydrocarbon having from 2 to 22 carbon atoms, and optionally at least one monomer selected from the group consisting of monomers having the formula: $R^1HC = CHR^2$; and $H_2C=C^2R^3$ where R^1, R^2, R^3 are the same or different hydrocarbons or substituted hydrocarbons having 1 to 22 carbon atoms (Abstract).

As to process of modifying at least one propylene based polymer with a radical initiator and a compound containing in the same molecule an ethylenic double bond and a polar group in **independent claim 1**, Chen et al (US05814715A) disclose the polymers and copolymers to be functionalized, e.g. chemically modified, with a functional group. Preferred functional groups are selected from acid, ester, acid-ester. Functionalization can be achieved by any suitable method. Useful methods include the reaction of an olefinic bond of the polymer with an unsaturated, preferably a mono-unsaturated, carboxylic reactant (Col. 7, line 60-67). An ethylenically unsaturated carboxylic acid or derivative may be grafted onto saturated or unsaturated polymer backbone in solid form by using a radical initiator (Col. 28, line 7-10).

As to Molecular Weight Distribution (Mw/Mn) to be more than 2.5 in **independent claim 1**, Chen et al (US05814715A) disclose the molecular weight distribution (MWD) depending on polymerization conditions. The molecular weight distribution can be controlled depending on the desired polymer. Useful polymers have narrow molecular weight distributions

of less than 4 and ranging from 1.1 to 4.0. Other polymers can have large MWD's of 10 or greater (Col. 11, line 44-51).

As to the intrinsic viscosity measured at 135 °C in tetralin to be from 0.8 to 3.0 dl/g in **independent claim 1**, and content of polar moiety to be from 0.10 to 0.30 mmol/g and content of components with Mw of 10,000 or less being 5% wt or less in **independent claim 1**, in view of substantially identical modified α-olefin based (such as propylene) polymers and methods disclosed by Chen et al, and by applicants, it is examiner's position to believe that the functionalized polymers of Chen et al would inherently possess the intrinsic viscosity of from 0.8 to 3.0 dl/g, the ranges for polar group moieties content, and content of components with Mw of 10,000 or less as claimed. Since USPTO does not have proper means to conduct the measurements, the burden now is shifted to applicants' to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

As to ratio of intrinsic viscosity in **claim 2**, in view of substantially identical propylene based polymer and modified polymer disclosed by Chen et al, and by applicants, it is examiner's position to believe that the functionalized polymers of Chen et al would inherently possess the intrinsic viscosity ratio as claimed. Since USPTO does not have proper means to conduct the measurements, the burden now is shifted to applicants' to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

As to limitation of **claim 3**, Chen et al disclose an unsaturated carboxylic acid or derivative maybe grafted selected (Col. 28, line 7-8).

As to melting and kneading the resultant blend at a temperature of not lower than the melting point of propylene based polymer and 180 °C or less in **claim 4** and die temperature 180 °C or less in **claim 23**, Chen et al disclose in the solid or melt process for forming a graft polymer, the temperature of the molten material in this process may range from about 150 °C to 400 °C (Col. 28, line 33-42).

Claims 4 and **23** are also rejected based on the rationale of product-by-process. *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(9). **Claims 5-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US05814715A) in view of Ueno et al (US004983647).

As to component (B) in a polyolefin resin composition in **claims 5, 6** and **7**, the disclosure of Chen et al is incorporated herein by reference, the most subject matter as claimed has been recited in applicants' claims 1 and 2, and has been discussed therein.

As to components A, C and D in a polyolefin resin composition in **claims 5, 6, 7** and **19**, Chen et al **do not teach** the polyolefin resin composition comprising components A, C and D.

However, Ueno et al (US004983647) **teach** the resin composition comprising a mixture of modified polyolefin obtained by introducing a carboxyl group into a polypropylene and unmodified polypropylene, mica and ethylene-propylene copolymer rubber (Abstract). It is well known in the art that mica is smectite lamellar clay mineral.

The advantage of this polypropylene composition is capability of providing molded articles of very low warpage and is useful for production of molded articles, particularly core materials of instrument panels for automobiles requiring high rigidity, high heat resistance and deformation resistance (Abstract).

Therefore, it would have been obvious at time of the invention to formulate the resin composition of Ueno et al including modified propylene of Chen et al in order to obtain the above-mentioned advantage.

As to limitation of **claim 8**, Ueno et al disclose the unmodified polypropylene in the mixture (Abstract). As an unmodified polypropylene being a crystalline ethylene-propylene block copolymer has an ethylene content of 2-30 wt% (Col. 2, line 48-51). Ueno et al disclosed the crystalline ethylene-propylene block copolymer having MFR of 15 g/10 min and an ethylene content of 7.5 wt% (hereinafter this copolymer is abbreviated to unmodified PP) in Example 10.

As to limitation of **claim 9**, Ueno et al disclose the resulting mixture to be fed into a double-screw extruder having two feed openings. These components were melt-kneaded and extruded at 240-260 °C to obtain pellets in Example 1.

(10). **Claims 24, 20-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US05814715A) in view of Tatsuyuki et al (JP 62-072739).

As to component (A) and (B) in a polyolefin resin composition in **claim 24**, the disclosure of Chen et al is incorporated herein by reference, the most subject matters as claimed have been recited in applicants' claim 1, and have been discussed therein.

As to component (C) an organized layer inorganic compound in a polyolefin resin composition, Chen et al **do not teach** the polyolefin resin composition comprising (A), (B) and (C) as claimed.

However, Tatsuyuki et al (JP 62-072739) **teach** the polypropylene resin composition by compounding a polypropylene resin, modified polyolefin resin grafted with 0.01 to 5% unsaturated carboxylic acid and mica (Title). It is well known in the art that mica is lamellar inorganic material.

The advantages of combining these component together is to obtain well-balanced rigidity and impact strength and excellent heat-resistance and appearance of molded article and suitable as automobile parts etc., (Abstract-Purpose).

Therefore it would have been obvious at time of the invention to use mica in the composition of Tatsuyuki et al including the component (A), (B) of Chen et al in order to obtain the above-mentioned advantages.

As to the α-olefin polymer (A) to be a homopolymer of a 1st α-olefin having 3 or more carbon atoms, melt flow rate of the α-olefin from 0.1 to 200 g/10-minutes in **claim 20**, Tatsuyuki et al disclose polypropylene resin having melt index of 0.1 to 100 (Abstract-Constitution).

As to process for producing the polyolefin composition in **claim 21**, it is product-by-process claim, the patentability is based on product. *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

Response to Arguments

(11). Applicant's arguments filed on 04/05/2007 have been fully considered but they are not persuasive.

As to the argument of radical initiator in the process for producing the modified propylene based polymer where the prior art reference Diana et al (US05936041A) fail to disclose the use of radical initiator, the discussion of instant claim 1 above is incorporated herein.

The rationale of rejection is based on product-by-process. *In re Thorpe*, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985).

In regard to the properties of Applicants' modified propylene based polymer, the inherency is based on the fact that modified propylene based polymer disclosed by Diana et al, Chen et al and by Applicants are substantially identical. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu
Art Unit: 1724
Date: June 7, 2007

DUANE SMITH
PRIMARY EXAMINER
6-7-07